CS – 15 : RDBMS Using Oracle

Objectives:
- To provide the basic concept, theory and practices in design and implementation of DBMS.

- To be able to handling different type of data transaction by using SQL commands.

Prerequisites:
- Theoretical as well as practical knowledge of database management system.

No.	Topics	Details	Marks weight In %	Min Lect.
1	**DBMS Overview, SQL, SQL*Plus**	• Introduction to DBMS • Introduction to RDBMS • Dr.E.F.Codd Rules • Importance of E.R.Diagram in Relational DBMS. • Normalization • Introduction to SQL • SQL Commands and Datatypes • Introduction to SQL*Plus • SQL*Plus formatting commands • Operator and Expression • SQL v/s SQL*Plus	20	10
2	**Managing Tables and Data, Data Control And Transaction Control Command**	• Creating , Altering & Dropping tables • Data Manipulation Command like • Insert, update, delete • Different type of constraints and applying of constration • SELECT statement with WHERE, GROUP BY and HAVING,ROLLUP AND CUBE, ORDER BY, DISTINCT, Special operator like IN, ANY, ALL, BETWEEN, EXISTS, LIKE • Join (Inner join ,outer join, self join) • subquery, minus, intersect, union • Built in functions	20	15

		- Numeric Function abs, ceil, cos, decode, exp, floor, greatest, least, log, log10, max, min, rem, round , sign, sin, sinh, sqrt, tan, trunc - Character Function chr, concat, initcap, lower, lpad, ltrim, replace, rpad, rtrim, soundex, substr, treat, trim, upper - Date Function add_months, last_day, months_between, next_day, round (date), sysdate, systimestamp, trunc (date), to_date, to_char - Aggregate function Sum, Count, AVG, MAX, MIN - General Functions COALESCE, CASE WHEN, DECODE - Creating user & role - Grant, Revoke command - What is transaction? - Starting and Ending of Transaction Commit, Rollback, SavePoint		
3	Other ORACLE Database Objects, Concurrency control using lock	- View - Sequence - Synonyms, - Database Links - Index - B*Tree Indexes - Bitmap Indexes - Function-Based Indexes - Application Domain Indexes - Cluster - Snapshot - What Are Locks? - Locking Issues - Lost Updates - Pessimistic Locking - Optimistic Locking - Blocking - Deadlocks - Lock Escalation - Lock Types - DML Locks - DDL Locks - Latches - Manual Locking & User-Defined Locks	20	10

4	Introduction to PL/SQL, Advanced PL/SQL	- SQL v/s PL/SQL - PL/SQL Block Structure - Language construct of PL/SQL (Variables, Basic and Composite Data type, Conditions looping etc.) %TYPE and %ROWTYPE - Using Cursor(Implicit, Explicit) - Exception Handling - Creating and Using Procedure, Functions, - Package, - Triggers - Creating Objects, - Object in Database-Table - PL/SQL Tables, Nested Tables, Varrays	20	15
5	Oracle Database Structure and Storage Database, Resource Management and Task Scheduling	- Instance Architecture - Database Processes - Memory Structure. - Data files - Creating & Altering Database - Opening & shutdown Database - Initialization Parameter - Control Files, Redo Logs files - Tablespace(Create, Alter, Drop) - Rollback Segment (Create, Alter) (System & Transaction RBS) - Oracle Blocks - Import - Export - SQL*Loader - Managing Automated Database Maintenance Tasks - Managing Resources with Oracle Database Resource Manager - Oracle Scheduler Concepts - Scheduling Jobs with Oracle Scheduler - Administering Oracle Scheduler	20	10
	Total		100	60

Students seminar - 5 Lectures
Expert Talk   - 5 Lectures (Managing a Multitenant Environment using Oracle 12c)
Students Test   - 5 Lectures.
TOTAL LECTURES 60+15=75